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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/532,786	03/22/2000	Nobuhiko Hayashi	000351	8588
23850	7590	10/11/2005	EXAMINER	
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP 1725 K STREET, NW SUITE 1000 WASHINGTON, DC 20006			RODRIGUEZ, ARMANDO	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 10/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/532,786

Applicant(s)

HAYASHI ET AL.

Examiner

ARMANDO RODRIGUEZ

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,6-12 and 15-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-12 and 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

After a thorough review of applicant's amendments, arguments and the claims, it is the examiner's position that independent claims 1, 7, 11, 12 and 15 continue to imply having the end portion of the current blocking layer in contact with the upper surface of the second nitride based semiconductor layer, which is not illustrated by the drawings or supported by the specifications, as such the allowability of claims 1, 7, 11, 12 and 15 is withdrawn.

After careful review of the cited Bour et al reference it is the examiners position that the Bour et al reference does disclose the first nitride based semiconductor layer, as illustrated in figure 1 where layers (121), (145) and (125) comprise the first nitride based semiconductor layer, as such the indication of allowable subject matter of claim 3 is withdrawn.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 2, 4, 6-12, 15-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claims 1, 7, 11, 12 and

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15 imply having the end portion of the current blocking layer in contact with the upper surface of the second nitride based semiconductor layer, which is not illustrated by the drawings or supported by the specifications.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Bour et al (US 2003/0053504).

Regarding claim 1,

Figure 1 illustrates a semiconductor laser having a cladding layer (121) made with Ga and N and having a quantum well (145) [applicant's emitting layer], figure 1 illustrates a cladding layer (125) [applicant's ridge portion] made with Al, where the layers (121), (125) and (145) form applicant's first nitride based semiconductor layer, figure 1 illustrates a burying layer (155) [applicant's current blocking layer], which forms an opening with a width smaller than the ridge and in paragraphs [0016] and [0018] describes the function of the burying layer as carrier confinement and favors current injection into the quantum well, which implies the function of current confinement layer, the figure also illustrates a capping layer (185) [applicant's second nitride layer] made

with Ga and N, where the burying layer is in contact with the upper surface of the capping layer.

Claim 1 has been considered a product-by-process claim based on applicant's limitation of "a transverse growth technique". Applicant is reminded determination of patentability is based on the product itself and does not depend on its method of production, See MPEP 2113.

Regarding claims 2, 4, 9,

Paragraph [0016] discloses the burying layer [applicant's current blocking layer] as made with Al, Ga and N.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bour et al (US 2003/0053504) as applied to claims 1 and 2 above, and further in view of Sugiura et al (PN 5,932,896).

Regarding claim 6,

The current blocking layer of Bour et al illustrated in figure 1 has the composition of AlGa_{0.5}N_{0.5}, as described paragraph [1116].

Bour et al is silent as to the current blocking layer containing the composition of indium and gallium.

However, the use of current blocking layers having the composition of indium and gallium is well known in the art and is described by Sugiura et al in column 24 lines 7-9, as a desired composition, which implies a design preference.

Therefore, it would have been obvious to one of ordinary skill in the art to provide the nitride semiconductor laser of Bour et al with the current blocking layer of Sugiura et al because it would provide current blocking.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bour et al (US 2003/0053504).

Regarding claims 10

The current blocking layer of Bour et al illustrated in figure 1 has the composition of AlGa_N, as described paragraph [1116].

Bour et al is silent as to current blocking having multiple layers.

However, in accordance with *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960), the court has held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced. See MPEP 2144.04 VI.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bour et al (US 2003/0053504) as applied to claims 1 and 4 above.

Regarding claim 19,

Bour et al does illustrates a current blocking layer forming a space on the top surface of the ridge, which has a width smaller than the width of the top surface of the ridge, thereby the difference in width will provide a ratio of the width less than 1 and greater than zero.

Bour et al does not explicitly disclose a ratio of not less than 0.1 nor more than 0.95.

However, in accordance with MPEP 2144.05 Obviousness Ranges:

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARMANDO RODRIGUEZ whose telephone number is 571-272-1952. The examiner can normally be reached on 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MINSUN HARVEY can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


ARMANDO RODRIGUEZ
Examiner
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